

ABSTRACT

A method and apparatus regulate the admission control of, and requests for routing of, virtual circuits in a network by determining network resource requirements for the virtual circuits. The method is generalized for the shared-memory architecture of a network node, to allocate a buffer size value, B_i , to an output port, i , for use in the effective bandwidth computation. A static allocation policy is utilized to allocate the available buffer, B_{SMF} , to each output port, i . The allocated buffer is determined by selecting a value from a range having a lower bound obtained by partitioning the buffer, B_{SMF} , to evenly divide the buffer space among all the output ports, such that $\sum_i B_i = B_{SMF}$; and having an upper bound obtained by using the total available buffer, B_{SMF} , for each port in their computation of effective bandwidths. The network resource requirements are based on a set of parameters used to control the flow of information from a communications device onto the virtual circuit. The requirements for network resources typically include buffer space requirements in network nodes and bandwidth requirements in network links, and the parameter used to control the flow of information are those associated with an access regulator, such as a leaky bucket regulator (LBR). The network resource determination is made for the case where lossless performance in the network is required and in the case where statistical multiplexing with limited loss is allowed.